

AHERA 3-Year Asbestos Re-Inspection

Denver Waldorf School
940 Fillmore Street
Denver, Colorado 80206



Report Date: November 20, 2013

OEI Project No. 13.159

Prepared For:

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Prepared By:

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November 20, 2013

John Lewis
Denver Waldorf School
940 Fillmore Street
Denver, Colorado 80206

**RE: AHERA Required 3-Year Asbestos Re-Inspection
And Asbestos Management Plan Update.**

Dear Mr. Lewis:

Enclosed please find the AHERA required asbestos 3-year re-inspection for the Denver Waldorf School.

OEI appreciates the opportunity to provide this service to you. If you have any questions or require additional information please don't hesitate to call me.

Sincerely,

A handwritten signature in blue ink that reads "Shawn R. Lopez".

Shawn R. Lopez
President

SRL/ra





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AHERA ASBESTOS 3-YEAR RE-INSPECTION TABLE OF CONTENTS

Section	Title
1.0	Introduction
2.0	Asbestos Re-assessment
3.0	Certifications
4.0	Sampling Procedures
5.0	Regulatory Review





1.1 INTRODUCTION

Purpose of Inspection:

Orion Environmental, Inc. (OEI) conducted an asbestos re-inspection of the Denver Waldorf School on November 13, 2013. The purpose of this asbestos re-inspection was to satisfy the requirement for 3-year asbestos re-inspections per the Environmental Protection Agency (EPA) Asbestos Hazard Emergency Response Act (AHERA) detailed in 40 CFR 763. This AHERA 3-year re-inspection does not replace previous inspections but is meant to supplement them.

The Building was operated as a Private School Building by the Archdiocese of Denver under the name Good Shepherd Elementary School until approximately 2002 when the Denver Waldorf School acquired ownership of the building.

The original AHERA asbestos management plan for the building was developed by Spence Geiger Associates, Inc. in 1988. ATEC Associates, Inc. conducted the 3-year re-inspection, MP update in 1992, re-inspection, MP update was conducted by Environmental Science & Engineering, Inc. in 1995, and Orion Environmental, Inc. performed a re-inspection, MP update in April 2007 and May of 2010.

OEI relied in part on previous re-inspection data when conducting the 2007 & 2010 re-inspections. Previous inspection data is herein incorporated by reference. The Asbestos Management Planner responsible for the creation of this document determined that collectively, the initial and subsequent re-inspections of the buildings properly identified all asbestos containing material or assumed asbestos containing material on the interior of the building based on records that were readily available at the time of publication. This 2013 re-inspection included the following known or assumed asbestos containing materials regarding the following on-site buildings:

Original south wing building and 1950's north wing addition:

- Air-cell pipe insulation (TSI)
- Crawl space debris and contaminated soil
- Pipe fitting insulation
- 9x9 VAT and associated adhesives
- 12x12 VAT and associated adhesives
- CMU Block Walls
- Work bench in facilities management office
- Formica adhesive in the kitchen
- Sink undercoating in the kitchen





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Materials previously tested and found to be non-asbestos containing:

Original south wing building and 1950's north wing addition:

- 12" ceiling tiles
- Wall and ceiling plasters
- Sheet vinyl floor coverings
- Gypsum board with joint compounds
- 2'x4' lay in type ceiling tile

Unattached shop building (date of construction unknown):

- Gypsum board with joint compounds





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2.0 Asbestos Re-assessment

2.1 Re-assessment of previously identified or assumed ACM :

This section contains the reassessment, as required by AHERA 763.85 (b), of the asbestos materials (**TSI & Soil**) previously identified in the initial inspection and re-inspections. The following is the reassessment of the previously identified asbestos materials in the **original building crawl space**. See project drawing for all locations of this ACM.

The crawl space of the building runs north to south along the west half of the building and accessed from the basement maintenance shop. The crawl space contains approximately 1,200 linear feet of friable ACM thermal systems insulation (TSI) on linear pipe runs, fittings, 'T's, and valves and approximately 4,200 square feet of asbestos contaminated soil identified during previous inspections. Approximately 40% of the ACM TSI has fallen from the pipes and is lying on the dirt floor or is otherwise damaged.

Reassessment: Based on the interview of the School's facilities manager, Mr. John Lewis, this re-inspection confirms the presence of this material throughout the crawl space as no abatement had occurred since the last re-inspection in 2010. The re-inspection of 2007 identified this material as "Significantly damaged thermal systems insulation" (TSI) & "Significantly damaged friable miscellaneous ACM" (soil). This material was identified as significantly damaged and friable at the time of this re-inspection and had an AHERA hazard assessment of "**Significantly damaged thermal systems insulation**"(TSI) & "**Significantly damaged friable miscellaneous ACM**" (soil). This assessment was assigned to the material because the TSI has lost its structural integrity, is crushed, and is damaged to the point where it can no longer contain fibers and has contaminated the soil throughout the crawlspace (functional space).

Recommendation/Response action: These materials throughout the functional space have a priority ranking of High meaning that one of the following response action recommendations shall be conducted immediately and completed by the end of the Schools scheduled 2014 summer vacation as the current condition of the ACM may pose a significant risk to public health and environment. The appropriate response for this material is to (1) immediately and properly abate (complete removal and/or repair of the TSI, and complete removal or encapsulation of the soil) the TSI and contaminated soil throughout the functional space; or (2) isolate (enclose) the functional space from the remainder of the building with permanent, impermeable airtight barriers and locking doors to prevent disturbance, and implement the O&M program for the functional space, include the crawl space as part of the periodic surveillance and re-inspection in the management plan. In the event of ENCLOSURE, facilities to and running through the crawl space should be terminated and the crawl space should not be accessed for any purpose other than periodic surveillance and re-inspection by trained personnel utilizing proper controls to avoid a fiber release episode until complete abatement of asbestos hazards has occurred.





2.2 Re-assessment of previously identified or assumed ACMB :

This section contains the reassessment, as required by AHERA 763.85 (b), of the asbestos materials (**gaskets and caulking**) previously assumed in the initial inspection and re-inspections. The following is the reassessment of the previously assumed asbestos materials in the **original building boiler room/maintenance shop**. See project drawing for all locations of this ACM.

Original Building boiler room/Maintenance shop

The boiler room/maintenance shop of the building is located in the basement of the original building situated at a central location. The boiler room contains one boiler with approximately 12 square feet of assumed non-friable asbestos containing gaskets and 35 linear feet of assumed non-friable ACM boiler plate compounds.

Reassessment: This re-inspection assumes the presence of this material throughout the interior of the boiler. The re-inspection of 2007 identified this material as ACMB with potential for damage. This material was identified as being in good condition and non-friable at the time of this re-inspection and had an AHERA hazard assessment of "**Miscellaneous ACMB with potential for damage**". This assessment was assigned to the material due to the age of the boiler and potential that the boiler may have to be replaced due to future failure.

Recommendation/Response action: These materials have a priority ranking of Low meaning that response action recommendation shall be implemented within 30 days and completed by the end of the Schools scheduled 2014 summer vacation. The current condition of the material does not pose a risk to public health and environment. The appropriate response for this material is to maintain the material in its current condition following the O&M plan, and include the material as part of the periodic surveillance and re-inspection in the management plan.





2.3 Re-assessment of previously identified or assumed ACMB :

This section contains the reassessment, as required by AHERA 763.85 (b), of the asbestos materials (**floor tile and adhesives**) previously identified in the initial inspection and re-inspections. The following is the reassessment of the previously identified asbestos materials throughout the **original building and north addition**. See project drawing for all locations of this ACM.

Original Building Basement & First Level, North Building First & Second Level	
9” ACM floor tile w/adhesives in basement, east boiler room entrance, original building.	9” ACM floor tile w/adhesives in basement, east boiler room entrance, original building.
12” ACM floor tile w/adhesives in basement ‘After Care Room’, original building.	9” ACM floor tile w/adhesives in basement ‘AD’s’ office restroom, original building.
9” ACM floor tile w/adhesives in basement ‘AD’s’ office corridor, original building.	9” ACM floor tile w/adhesives in basement ‘Festival Hall’, original building.
9” ACM floor tile w/adhesives in stair towers and on stair treads, original building.	9” ACM floor tile w/adhesives throughout the main level corridor, original building.
9” ACM floor tile w/adhesive in the first floor corridor, north building.	12” non-ACM floor tile obscuring ACM floor tile adhesives, 2nd level, north building.
Wood flooring obscuring ACM floor coverings in classrooms, north building.	Wood flooring obscuring ACM floor coverings in classrooms, original building.

Reassessment: This re-inspection confirms approximately 18,000 square feet of asbestos containing floor tile and associated adhesives throughout various locations of the building. The re-inspection of 2010 identified this material as ACMB with potential for damage. This material was identified as being in good condition and non-friable at the time of this re-inspection and had an AHERA hazard assessment of "**Miscellaneous ACMB with potential for damage**". This assessment was assigned to the material due to limited and isolated damaged, the age of the material, water contact, and close proximity to building occupants.

Recommendation/Response action: This material has a priority ranking of **Medium** meaning that the following response action recommendation shall be implemented **within 30 days and completed by the end of the Schools scheduled 2014 summer vacation**. The current condition of the material does not pose a significant risk to **public health and environment**. The appropriate response for this material is to repair/replace the material that is broken, loose, or has otherwise become damaged,





maintain the material under the O&M plan and include the material as part of the periodic surveillance and re-inspection in the management plan.

2.4 Re-assessment of previously identified or assumed ACMB :

This section contains the reassessment, as required by AHERA 763.85 (b), of the asbestos materials (**thermal systems insulation (TSI)**) previously identified in the initial inspection and re-inspections. The following is the reassessment of the previously identified asbestos materials throughout the **original building and north addition**. See project drawing for all locations of this ACM.

North Building HVAC Plenum Between First and Second Floors

Reassessment: This re-inspection confirms the presence of approximately 300 linear feet of TSI throughout the ceiling plenum between the first and second floors of the North building. This material was identified as being in good condition and non-friable at the time of this re-inspection and had an AHERA hazard assessment of "**ACBM with potential for damage**". This assessment was assigned to the material due to the material being in a routine maintenance area.

Recommendation/Response action: This material at this location has a priority ranking of **Low** meaning that response action recommendations shall be implemented within **30 days and completed by the end of the Schools scheduled 2014 summer vacation**. The **current condition of the material does not pose a risk to public health and environment**. The appropriate response for this material is to label the material according to OSHA requirements, maintain the material in its current condition under the O&M plan, and include the material as part of the periodic surveillance and re-inspection in the management plan.

Original Building Basement Level.

TSI linear runs and fittings along ceiling of the basement kitchen.	TSI linear runs and fittings along ceiling of the basement After Care Room.
TSI linear runs and fittings along ceiling of the basement 'AD's' office.	TSI linear runs and fittings above the ceiling plenum throughout the building.

Reassessment: This re-inspection confirms the presence of approximately 800 linear feet of TSI at various locations throughout the original building. Material above hard ceilings and behind hard walls is assumed to exist. In general, the re-inspected material was found to be in good condition with the exception of the of the TSI along the north wall of the facilities maintenance office, which is located just outside the crawl space entry doorway. This material was identified as being damaged and friable at the time of the re-inspection and had an AHERA hazard assessment of "**Damaged or Significantly Damaged Thermal System Insulation**". This assessment was assigned to the material due to the material being in a routine maintenance area. Accessible material was





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identified as being in good condition and friable at the time of this re-inspection and had an AHERA hazard assessment of "**Damaged thermal systems insulation with potential for significant damage**". This assessment was assigned to the material because of its close proximity to building occupants, being in routine maintenance areas, and minor marks and gouges at limited/isolated locations of the material.

Recommendation/Response action: These materials throughout the functional space have a priority ranking of High meaning that one of the following response action recommendations shall be conducted immediately and completed by the end of the Schools scheduled 2014 summer vacation as the current condition of the ACM may pose a significant risk to public health and environment. The appropriate response for this material is to (1) immediately and properly abate (complete removal and/or repair of the TSI, and complete removal or encapsulation of the TSI piping or (2) isolate (enclose) the functional space from the remainder of the building with permanent, impermeable airtight barriers and locking doors to prevent disturbance, and implement the O&M program for the functional space, include this area as part of the periodic surveillance and re-inspection in the management plan. Additional appropriate response for this material is to apply labels for the two fitting along the north wall adjacent to the crawl space entry and to re-apply the label on the TSI piping in the facilities office.

****TSI is assumed to exist inside wall cavities, pipe chases, etc. but was not accessible. The physical condition and hazard assessment should assume the worse case scenario.**

Other assumed ACBM :

This section contains the reassessment, as required by AHERA 763.85 (b), of the asbestos materials (**Miscellaneous**) assumed to exist during this re-inspection. The following is the reassessment of the previously identified or assumed asbestos materials throughout the **Facility**.

Assumed asbestos containing fire doors exist throughout the facility and were in good condition and enclosed. The AHERA hazard assessment for fire doors is "Remaining friable suspected ACBM". This hazard assessment was assigned to this material because the assumed ACBM is tightly encased on the interior of the fire doors. The appropriate response for this material is to maintain the material and include it in the periodic surveillance and re-inspection in the management plan.

Assumed asbestos containing high temperature resistant asbestos cement panels are assumed to exist under the boiler in the boiler room and is inaccessible. The AHERA hazard assessment for this material is "ACBM with potential for damage". This hazard assessment was assigned to this material because the assumed ACBM is inaccessible. The appropriate response for this material is to maintain the material and include it in the periodic surveillance and re-inspection in the management plan.

Assumed asbestos containing chalk boards are assumed to exist and were in good condition at the time of this inspection. The AHERA hazard assessment for this material is "ACBM with potential for damage". This hazard assessment was assigned to this





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material because the assumed ACM is accessible to building occupants. The appropriate response for this material is to maintain the material and include it in the periodic surveillance and re-inspection in the management plan.

Assumed asbestos containing electrical wire is assumed to exist and is inaccessible. The AHERA hazard assessment for this material is "Remaining friable suspected ACM". This hazard assessment was assigned to this material because the assumed ACM is inaccessible. The appropriate response for this material is to maintain the material and include it in the periodic surveillance and re-inspection in the management plan.

Follow the Operations & Maintenance plan for the management of these materials.





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Known Asbestos Abatement

Original Building Above the Basement Restroom Ceilings.

Approximately 70 linear feet of TSI previously identified above the drop ceilings in the north basement restrooms was abated by DLM, Inc. on the dates of 6/22/07-6/24/07. Orion Environmental, Inc. provided all abatement project management and required final air clearance testing.

According to Mr. Lewis, the floor tile and mastic in the Science Laboratory and the Aftercare girl's restroom were removed in the summer of 2013. Additional information and/or reports were not available at the time of this re-inspection.

North Building Addition

Approximately 7,000 (including overspray) square feet of previously identified surfacing material on ceiling decks above the drop ceilings throughout the North Building was abated by DLM, Inc. on the dates of 6/25/07-7/5/07. Orion Environmental, Inc. provided all abatement project management and required final air clearance testing.

3.0 CERTIFICATIONS

The following representatives of Orion Environmental, Inc performed the EPA AHERA asbestos re-inspection and Management Plan recommendations in November of 2013:

Name of Asbestos Inspectors- Gabe Touma, R. Michael Semonisck

Signature: 

Colorado Accreditation: Gabe Touma, Inspector No. 16860

R. Michael Semonisck, Inspector No. 10554



4.0 Sampling Procedures

No bulk samples of suspect ACMs were collected during this asbestos re-inspection. During the initial inspections of the buildings and during subsequent re-inspections, all accessible suspect ACM had been identified or assumed to be asbestos containing. Refer to Management Plan and Inspection Data collected and developed prior to this 2013 re-inspection.

5.0 Regulatory Review

In October 1986 the Asbestos Hazard Emergency Response Act (AHERA) was signed into law. Included in this Act were provisions directing EPA to establish rules and regulations addressing asbestos-containing materials in schools. The rules and regulations were published in 40 CFR 763 and require all public and private elementary and secondary schools (K-12) to inspect for both friable and non-friable asbestos, implement response actions, and submit asbestos management plans to state governors or designated agencies. In addition, the rule requires periodic surveillance and re-inspection to monitor asbestos-containing materials left in schools. Periodic surveillance requires surveying these materials every six months to determine if the condition has changed since the last inspection or surveillance. In addition, schools must have a state certified asbestos building inspector re-inspect and reassess the condition of remaining asbestos-containing materials every three years and determine if the condition of the material requires new or additional response actions. Schools that have previously conducted inspections consistent with the final rule and have determined that no asbestos-containing materials are present in their schools are excluded from the 6-month surveillance and 3-year re-inspection requirements. In addition, a school is exempt from the AHERA regulation if it was built after October 12, 1988, and an architect, project engineer or accredited inspector signs a statement that no asbestos-containing materials were specified for use in construction documents.

The EPA/AHERA sampling protocols for suspect ACMs requires the following minimum number of bulk samples for each homogeneous material:

Thermal System Insulation: 3

Surfacing Materials:

up to 1000 sq. ft.	3
>1000 to 5000 sq. ft.	5
>5000 sq. ft.	7

Miscellaneous Materials:

Determined by the Inspector (1 minimum)

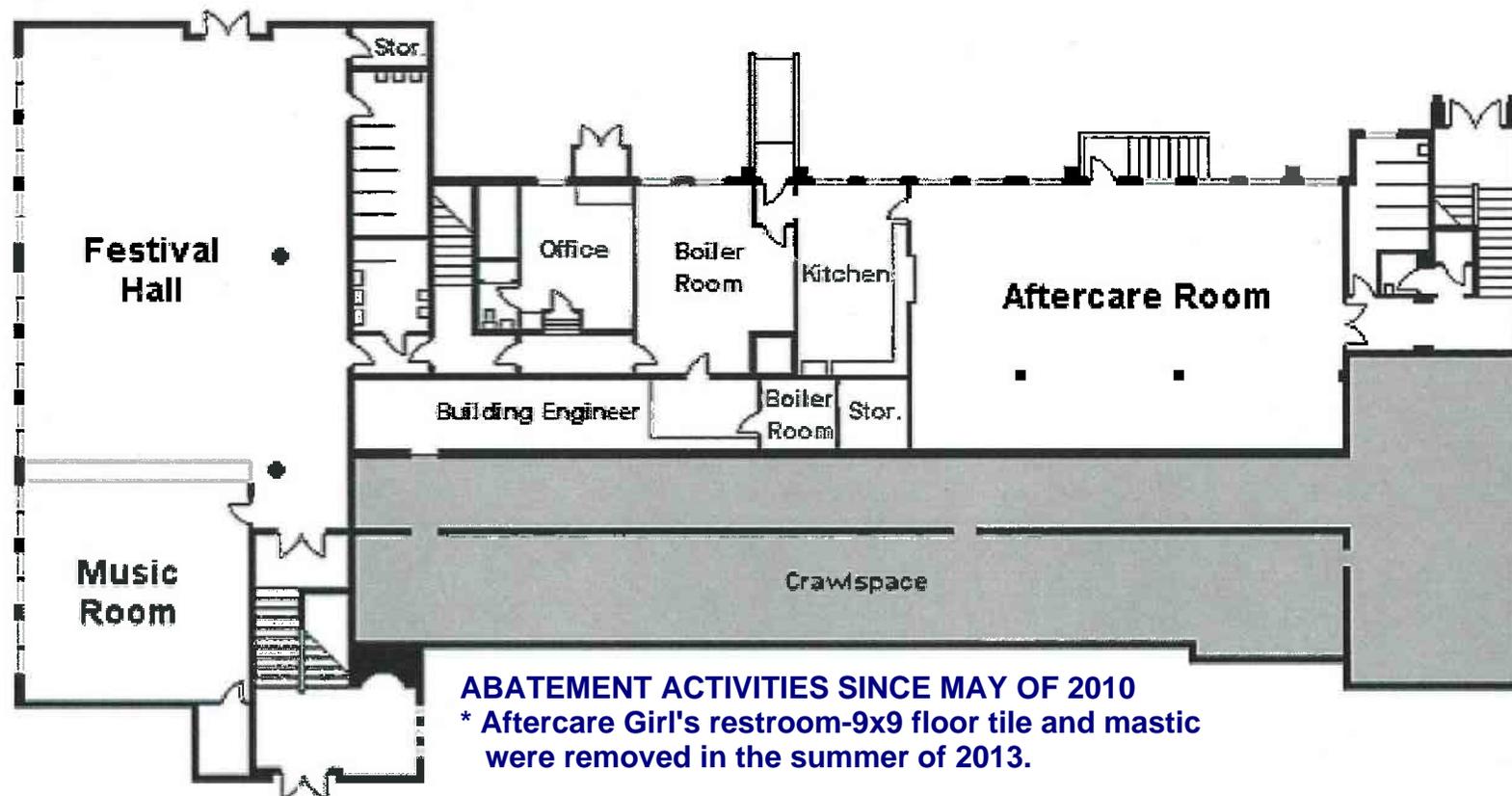
The AHERA regulation states that all samples from each homogeneous material must be analyzed by Polarized Light Microscopy (PLM) and be negative for asbestos in order to prove that a material is not an ACM. However, if one sample from the homogeneous material is positive for asbestos, the entire homogeneous material must be considered an ACM.

In some circumstances, point count analysis is required for bulk asbestos samples. Point count analysis has a higher level of analytic sensitivity than standard PLM analysis. The EPA and Colorado Department of Public Health and Environment (CDPHE) define ACMs as materials containing greater than one-percent (>1%) asbestos. The NESHAP regulation requires point count analysis if standard PLM analysis determines that a sample contains less than ten percent (<10%) asbestos or the material can be assumed an ACM. Even if the sample is less than one percent (<1%) by standard PLM analysis, the material must be assumed an ACM or point counted. If the point count analysis is different from the standard PLM analysis, the point count result takes precedence. If the standard PLM analysis determines that the sampled material does not contain asbestos or that the material contains greater than ten percent (>10%) asbestos, point counting is not required.

The CDPHE, Regulation 8, Part B, requires that an asbestos inspection be performed, following the AHERA sampling protocol, prior to demolition or remodeling activities. The October 11, 1994 revision to the Occupational Safety and Health Administration Construction Standard (29 CFR 1926) requires that suspect ACMs in buildings built prior to 1980 be assumed to contain asbestos or an asbestos inspection be conducted in accordance with AHERA sampling protocol. The EPA Worker Protection Rule requires that OSHA asbestos regulations be complied with, regardless of the employer.

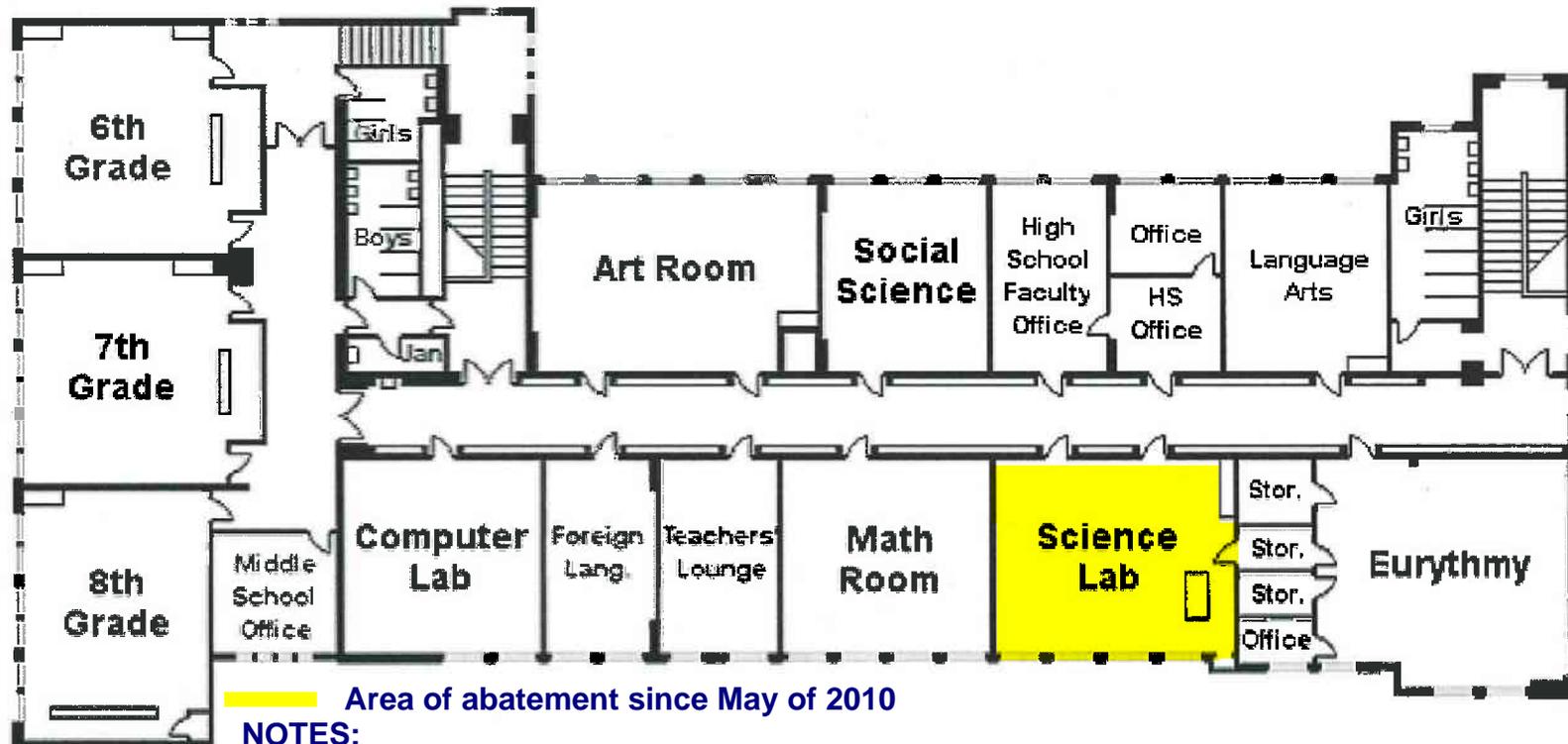
Denver Waldorf School

Lower Level Floor Plan



Denver Waldorf School

Upper Level Floor Plan



NOTES:

*Floor tile and mastic was removed from the Science Lab in the summer of 2013